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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/824,359	04/02/2001	Samuel L. Thomasson	10205.029	9367

7590 08/11/2005  
Paul F. Wille  
6407 East Clinton Street  
Scottsdale, AZ 85254

EXAMINER

SINGH, RAMNANDAN P

ART UNIT	PAPER NUMBER
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2646

DATE MAILED: 08/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/824,359

Applicant(s)

THOMASSON ET AL.

Examiner

Ramnandan Singh

Art Unit

2646

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments filed on Mar 07, 2005 have been considered but are moot in view of the new ground(s) of rejection.

2. Status of Claims

Claims 8-9 are cancelled.

Claims 1-7 are pending.

***Double Patenting***

3. In view of cancellation of claims 8-9, the double-patenting rejection is withdrawn.

***Claim Rejections - 35 USC § 103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ku et al [US 6,424,925 B1].

Regarding claim 1, Ku et al teach a method for correlating two signals, the method comprising the steps of:

digitizing the signals if they are not already in digital form [Figs. 2A, 2B; col. 4, lines 2-12];

applying the signals to an exclusive-NOR gate (19A) [Figs. 1E, 1F; col. 2, lines 5-15];

counting the number of logic ones from the exclusive-NOR gate in a first counter (i.e. accumulator 37A) [Figs. 3A, 5A; col. 7, lines 11-32];

incrementing a second counter (i.e. U/D counter) when the count is above a first threshold (i.e. upper threshold,  $T_u$ ) [Fig. 3B; col. 7, line 44 to col. 8, line 7]; and

periodically resetting the first counter [Fig. 3A; col. 9, lines 28-29].

Although Ku et al teach the implementation of the second counter in the example using a one-way counter (such as an Up Counter) instead of two-way counter (such as an Up-Down counter (U/D counter)) to implement accumulator 37A, they also disclose how the second counter using a two-way counter instead of the above one-way counter can be used applying bits  $-1$  and  $+1$ . As a result, “-1 bit” of the U/D counter will result in decrementing the second counter when the count is below a second threshold (i.e. lower threshold  $T_1$ ) [Figs. 1F, 3A, 3B; col. 8, lines 8-42].

Claim 3 is essentially similar to claim 1 except for delaying (i.e. phase shifting) the digital signal to produce a delayed digital signal. Ku et al further teach the method for delaying ( $D_t$ ) the digital signal to produce a delayed digital signal [Fig. 2E; col. 6, line 45 to col. 7, line 10; col. 9, lines 24-40; col. 12, lines 30-49].

Regarding claim 2, Ku et al further teach the method comprising the step of: producing a signal indicative of correlation (i.e. detecting a tone) when the count in the second counter (U/D counter) exceeds a third threshold (18) [Fig. 1E; col. 1, line 62 to col. 2, line 15].

Regarding claim 4, Ku et al further teach the method, wherein the delaying step is preceded by the step of:

digitizing an audio signal to produce the digital signal [Fig. 2E; col. 7, lines 33-43; col. 11, lines 37-54].

Regarding claim 5, Ku et al further teach the method, wherein said digitizing step is preceded by the step of:

filtering the audio signal in a band pass filter (23) [Fig. 2A; col. 4, lines 2-12; col. 5, lines 6-19; col. 9, lines 1-13].

Claim 6 is essentially similar to claim 1 except for three comparators. Ku et al teach an U/D counter having a first comparator (not shown) for using an upper threshold ( $T_u$ ), a second comparator (not shown) for using a lower threshold ( $T_l$ ) [Figs. 1F, 3B]; and further teach an indication of correlation when the count in the U/D counter exceeds a third threshold using a third comparator (18) [Fig. 1E; col. 1, line 62 to col. 2, line 15].

Regarding claim 7, Ku et al further teach the telephone comprising: a band pass filter (23) having an output coupled to the input of the delay line [Fig. 2A].

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(i) Braams et al [US 5,850,438] teach improving tone detection in a correlator using exclusive gate 70 and an up-down counter 72 [Fig. 5; col. 5, line 35 to col. 6, line 26];

(ii) Belet et al [US 3,737,893] teach A/D converter [Fig. 4];

(iii) Thomson [US 5,028,924] teaches an accumulator [Figs. 4-7; and

(iv) Otsuka et al [US 4,674,078] teach applying an NXOR with an up-down counter [Fig. 18].

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (571) 272-7529. The examiner can normally be reached on M-TH (8:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2646

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ramnandan Singh  
Examiner  
Art Unit 2646

A handwritten signature in black ink, appearing to be 'RNS', with a long horizontal stroke extending to the right.A handwritten signature in black ink, appearing to be 'Sinh Tran', with a long horizontal stroke extending to the right.

**SINH TRAN**  
**SUPERVISORY PATENT EXAMINER**